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Surgery for Hydatid Cysts of the Liver

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ABSTRACT

This report details the perioperative management of 488 patients who underwent surgery for hydatid cysts of the liver. The most common pathology was a single cyst in the right lobe of the liver (53%). The preferred surgical procedures were partial cystectomy with closure of the residual cavity by suturing (31%) and total cystectomy (18%). Comunication with the biliary system was found in 13% of cysts. The presence of multiple cysts and the need for additional procedures contributed to the overall perioperative morbidity (42%) and mortality (1%).

***Key words**: Hydatid Cyst, Liver, Echinococcus granulosis, Surgery*

Hydatid disease is endemic in Turkey. As a result, the Gastroenterological Surgery Unit at the Advanced Specialist Hospital in Ankara has a large cilinical exposure to hydatid cysts of the liver. Because our patients are referred from geographically dispersed regions, we are unable to document the incidence of this recurrent disease. In this article, we review the primary management of 488 patients who underwent surgery for hydatid cysts of the liver over a period of ten years.

MATERIALS AND METHOD

We reviewed the clinical record of all patients who underwent surgery for hydatid disease of the liver within our institution between January 1981 and December 1990. The dispersal of the 488 cases was fairly evenly spread throughout this period, with no single calendar year contributing more than 16% of the total cohort. The median age of patients was 37 years, and the male: female ratio was 1.0:1.8 (176:312).

RESULTS

Ultrasonography revealed that most cysts involved the right lobe of the liver (Table 1). It is of interest that 49 patients (12%) had multple cysts involving both lobes of the liver.

A variety of surgical procedures were performed. In 33 cases, left lateral segmentectomy was performed (Photos. 1 and 2), (Table 2). It was routine to use compresses soaked in 5% cetrimide in order to isolate the hydatid cyst from the remainder of the peritoneal cavity. Surgery for hydatid disease was combined with a number of other procedures: Cholecystectomy (18%), appendicectomy (6%), splenectomy (1%), truncal vagotomy and pyloroplasty (0.4%), Meckel's diverticulectomy (0.2%), and hemigastrectomy for cancer (0.2%).

In 62 cases (13%) the cyst communicated with a major bile duct: cholecodhotomy with insertion of a T-tube was performed in 40 patients, and a choledochoduodenostomy was performed in 22 patients. These procedures were always performed in combination with either cyst ablation or cystectomy.

Table 1. Site of the hydatid cysts within the liver

Site	Number	%
Right Lobe:		
Solitary	261	53.42
Multiple	56	11.47
Left lobe:		
Solitary	62	12.66
Multiple	20	4.09
Right and left lobes:		
Solitary	40	8.18
Multiple	49	10.18

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Table 2. Surgical procedures and overall perioperative complication rates

Procedure	Number	%
Partial cystectomy:		
Capitonnage	100	20
Introflexoin	54	11
Total cystectomy	87	18
Combined procedures	79	16
External tube drainage	53	11
Evacuation	39	8
Left lateral segmentectomy	33	7
Enucleation	14	3
Primary suture	10	2
Instillation	10	2
Marsupialisation	9	2

The diaphragm was breached during seven operations which necessitated the insertion of an underwater seal drain into the pleural space. The total postoperative morbidity was 48.32% (Table 3). The perioperavite mortality was 1% (4/488). Two patients died after a myocardial infarction, and two patients died with multiorgan failure.

DISCUSSION

Echinococcus granulosus is endemic in the cattle grazing areas of Turkey[9]. With regard to hydatid cysts of the liver, the most common presenting symptom is pain in the right upper quadrant of the abdomen (84%), and most patients have a palpable mass on clinical examination (78%), In our experience, ultrasonography is an accurate, economical, and non-invasive means of investigation. This review confirms that most cysts are solitary and that they tend to reside in the right lobe of the liver.

It is accepted that the main risks of surgery relate to spillage of the cyst contents[16]. In order

Photo. 1. Photograph of Hydatid Cyst.
Left lateral segmentectomy had been performed.

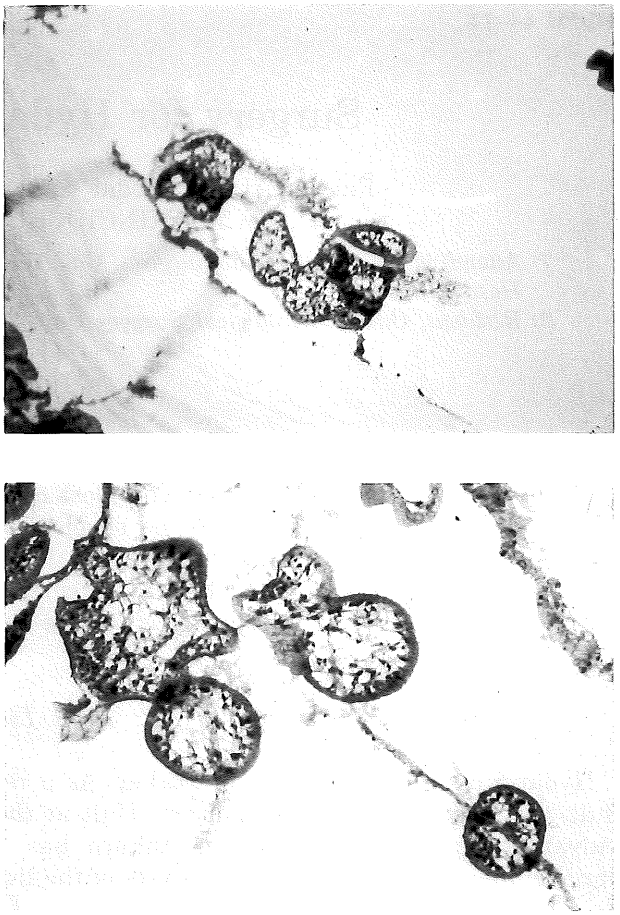

Photo. 2. Microphotographs of eggs of the Hydatic Cysts with germinative membrane cuticulae. Magnified 40 and 100 times.

Table 3. Postoperative complication

Complication	Number	%
Pneumonitis/Atelectasis	56	11.47
Infection of the cyst cavity	56	11.47
Biliary fistula	37	7.58
Wound infection	34	6.96
Urinary tract infection	18	3.68
Intrahepatic biloma formation	11	2.25
Cholangitis	9	1.84
Postoperative haemorrhage	5	1.02
Myocardial infarction	4	0.81
Prolonged ileus	4	0.81
Hepato-renal insufficiency	2	0.41
Total	236	48.32

to minimise the risk of spillage, most surgeons secure the operative field with packs sokad in a scolicidal solution. However, we have largely abandoned the use of scolicidal agents (such as 40% formalin) for instillation into the cysts because of the concern that they may pass through a biliary communication and produce irreversible sclerosis of the biliary tree[1,5,8,14]. This contrasts with an Australian experience that avoids excision of the cyst and recommends the instillation of 0.5% silver nitrate solution[10]. We used this technique in only 2% of our patients i.e. when some form of excision was undesirable in the presence of non-infected cysts that did not communicate with the biliary tract.

Our principal aim is total excision of the cyst. This procedure is ideal for small peripheral cysts[1,5,15], and total cystectomy accounted for 18% of our operations and was associated with a low rate of postoperative morbitiy. Hepatectomy for hydatid cysts tends to be regarded as a rather radical procedure[4,9]. However, in our experience, left lateral segmentectomy is ideal for cysts localised in segments 2 and 3 (7% of patients in this report).

If total cystectomy or hepatectomy are thought to be inappropriate, the fluid is emptied, the germinal membrane and daughter cysts evacuated, and the cavity is closed with sutures[9,15]. Our incidence of enucleation of 3% reflects the fact that hydatid cysts of the liver, unlike cysts in the lung, are invariably calcified and fibrotic. Evacuation implies the emptying of the cyst fluid, removal of the germinal membrane, and excision of the remaining capsule with the attached underlying liver tissue. Evacuation was performed in 8% of our patients.

The most common procedure performed in our hospital is partial cystectomy which includes the careful evacuation of the cyst contents and excision of the laminated membrane. The remaining cavity is dealt with in one of two ways. We performed capitonnage in 20% of our patients. Capitonnage being the obliteration of the cavity using absorbable sutura material[2,6]. This procedure is technically difficult when the cyst lies in either the diaphragmatic or posterior aspects of the liver. In our experience, postoperative morbidity increases when the sutures are placed too deeply. We performed introflexion in 11% of our patients. Introflexion is the partial obliteration of the cavity by imbricating the wall of the residual cyst cavity[4].

Filling of the residual cavity with omentum was first described by Papadimetrio and other[13]. We have abondoned this technique because of its attendant high morbidity. Merrett and Hunt have also highlighted the diagnostic confusion that can be created when trying to discriminate between recurrent hydatid disease and prior omentoplasty[12]. We have also abandoned primitive techniques such as marsupialisation and primary suture because of the high rates of perioperative morbidity and recurrent disease[4,6,15].

There was a biliary communication present in 13% of our patients. In these instances, direct closure of the communication with absorbable suture material was combined with drainage of the common bile duct either via a T-tube or by the performance of a choledochoduodenostomy[3,7]. We have not employed the alternative procudure of internal drainage of the cyst via a cystojejunostomy[11].

In this report we have documented a large anecdotal experience of a disease common to both Turkey and Australia. However, hydatid infestation appears to be more frequent in Turkey and we are exposed to more overt forms of this disease. Probably due to force of circumstances, we appear to rely more upon ablative surgery than less vigorous techniques based upon the instillation of scolicidal agents into the residual cavity. Nevertheless, we are dealing with a common enemy, and the mainstay of all forms of therapy is the avoidance of spillage of hydatid material at the time of surgery.

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